Watershed Protection: A Project Focus
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Office of Water

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Appendix A: Selected Pages from the State of the Anacostia - 1989 Status Report

August 1995

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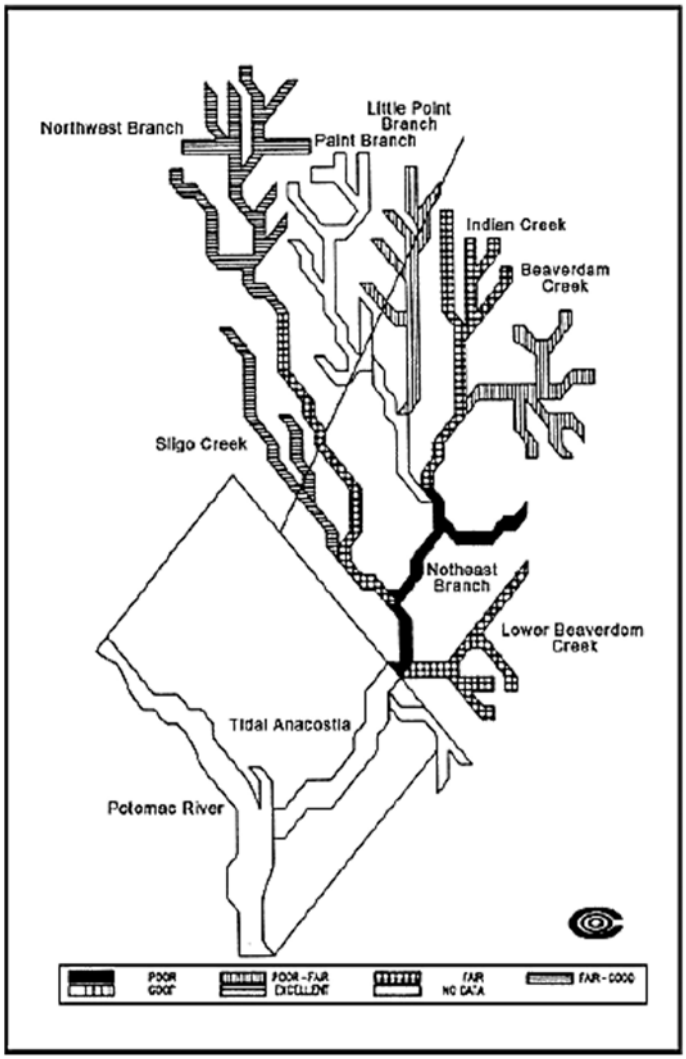
Current Environmental Conditions: Tributary Water Quality Index for 1988

A water quality index has been prepared to compare overall conditions within the tributary watersheds of the Anacostia. The index was based upon observed monthly monitoring data collected at over 15 stations by the CAMP program. The index includes data on water quality temperature, nutrients, pH, and water clarity. during 1988, water quality in the Anacostia tributaries did not change sharply from previous years.



As can be seen, the stream with the poorest water was the heavily channelized Northeast branch, followed by lower Beaverdam Creek, and Little Paint branch. In comparison to recent years, water quality conditions appeared to improve in the Indian Creek and declined slightly in the Upper Northwest Branch.

Water quality conditions within the tributary systems reflect the broad spectrum of land uses encountered in the watershed. Major water quality problems found throughout the tributary system include high concentrations of sediment

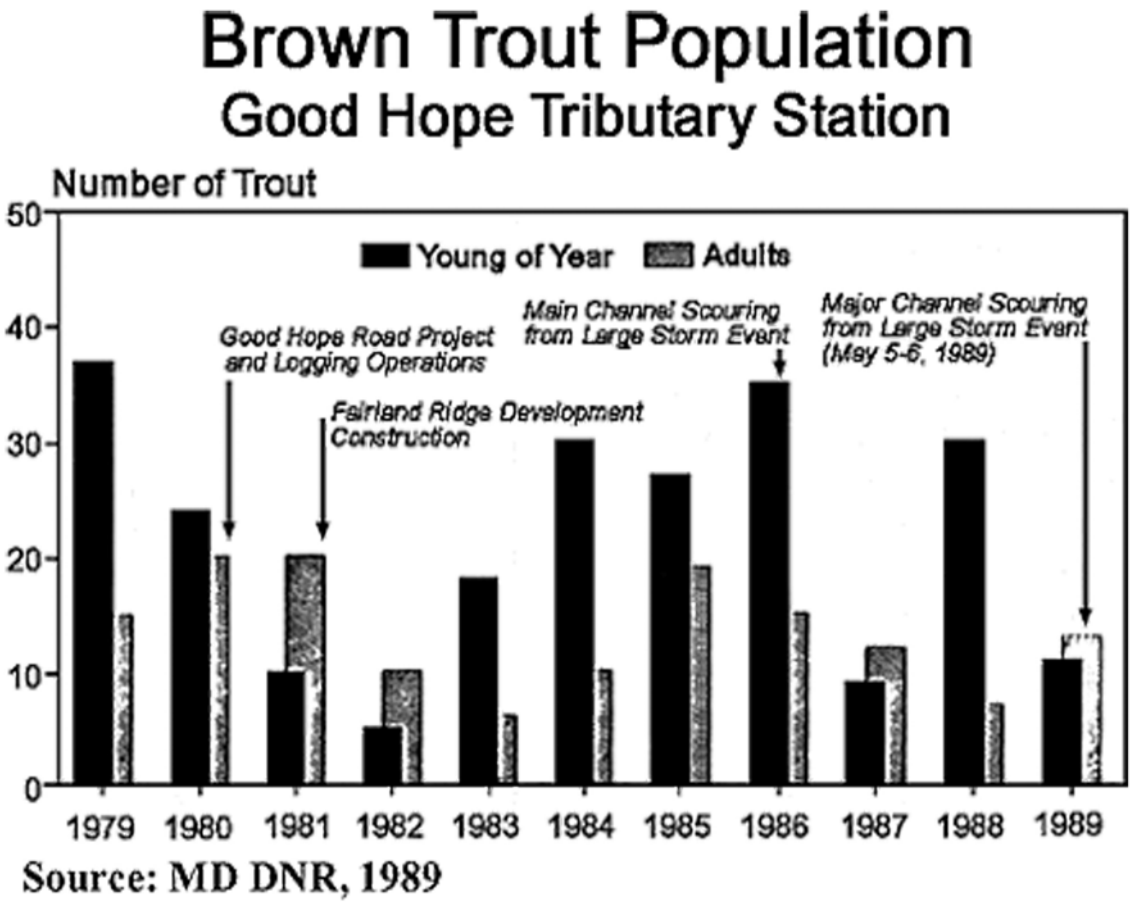
and bacteria, and elevated water temperatures. Localized water quality problems associated with high nutrient or toxic contaminants also exist within the tributary system..

Current Environmental Conditions: Urbanization and the Fragile Paint Branch Trout Fishery

Overall, Paint Branch's resident trout population remained relatively stable in 1989. However, the inherent resiliency of this trout-supporting system is being severely tested, both by channel scouring storm events, and increased sediment loads to key spawning and nursery tributaries. Of major concern is the gradual deterioration of physical habitat conditions within Paint Branch's principal trout-producing stream, the Good Hope tributary.

Good Hope Tributary

Since 1986, the stream channel erosion, turbidity, and sediment deposition have increased steadily in the Good Hope tributary. While the origins of these problems are many and complex, watershed development activities continue to exert the greatest negative influence. As illustrated in the adjoining chart, the fluctuating Good Hope trout population has historically been very responsive to natural and anthropogenic events, such as flooding and sediment pollution. Recent surveys suggest that aquatic habitat conditions necessary for the continued maintenance of a health Good Hope trout population may be at or near the critical threshold level. .



Brown trout population observed in Paint Branch fluctuate greatly as a result of land disturbances that create increased sediment loadings.

Upper Gum Springs Tributary

Fortunately, not all Paint Branch news was bad in 1989. Among the bright spots are the excellent number of young-of-year trout surveyed in the Upper Gum Springs tributary. Because of its relatively small size and limited number of quality pool areas, the Upper Gum Springs does not support large numbers of adult trout. In an attempt to improve adult habitat conditions and numbers in the stream, several pool-forming check dams were installed. This joint project among trout unlimited, Maryland Department of Natural Resources, and Maryland National Capital Park and Planning Commission will be continued in 1990.

Restoration Accomplishments: Coordination of the Watershed Restoration Effort

Due to its multi-jurisdictional character, the Anacostia watershed can only be fully restored if federal, state, and local government cooperate together to develop and implement watershed restoration projects. More than sixty different agencies are directly involved in some aspect of the restoration program. Their participation is coordinated through a series of policy and technical committees, as well as special work groups, supported by COG.

Anacostia Restoration Fund

The Anacostia Watershed Restoration Committee (AWRC) approved the concept of an Anacostia Restoration Fund (ARF) at their October 5, 1989 meeting. The fund supports the regular Anacostia coordination and management activities in addition to providing support for special basin-wide projects. The Fund formalizes and replaces prior funding arrangements that exist through various local, state, and federal grants.

Anacostia Retrofit Strategy

The AWRC endorsed the concept of developing a long-term basin-wide urban retrofit strategy. the AWRC reached a consensus agreement calling for the adoption of detailed Sub-Watershed Action Plans (SWAPs) as part of the urban retrofit strategy. This action will help in streamlining the approval of individual restoration projects and define interagency roles and responsibilities with regard to implementation.

Federal Participation in the Clean-Up Effort

COG staff acting upon a directive from the AWRC has coordinated with federal agencies to enlist greater federal support and participation in the Anacostia restoration effort.

Third Annual Work Plan

The AWRC adopted the final version of the 3rd Annual Work plan at their June 12th committee meeting. This plan covers the period between October 1, 1990 to September 30, 1991, and contains more than *50 local, state, and federal initiatives*. Although some initiatives continue previous programs, a significant number represent an increased emphasis on project implementation.

Sub-Watershed Action Planning Process

A sub-watershed action plan (SWAP) is intended to be a detailed blueprint for restoration activities within a priority area in the Anacostia. SWAP plans spell out where and when urban retrofit and stream restoration projects will be carried out. SWAP plans are to be prepared with the input and participation of all local, state and federal agencies with an interest in the watershed. Each SWAP plan will be different so as to address the unique problems of each stream in a comprehensive manner. The AWRC has endorsed the preparation of SWAP plans within nine priority sub-watersheds as a critical element of the overall restoration effort. The key components of a SWAP plan are listed on the following page.

Restoration Accomplishments: Eight Steps of a Sub-Watershed Action Plan

1. An in-depth analysis of the water quality and aquatic community within the sub-watershed.

2. The definition of specific target(s) or goals to guide the restoration effort in the sub-watershed.

3. A detailed inventory of the opportunities for stormwater retrofit and stream restoration projects.

4. Priority ranking of the restoration projects, based on feasibility, cost, and ability to meet sub-watershed targets.

5. Long-term agreements to design, review, permit, construct, maintain, and monitor the priority restoration projects.

6. Development of plans to increase wetland and forest cover in the sub-watershed.

7. Identify other actions that can be taken to protect the sub-watershed beyond restoration projects.

8. Specify a long-term monitoring program to assess progress made in achieving water quality and biological habitat improvements.

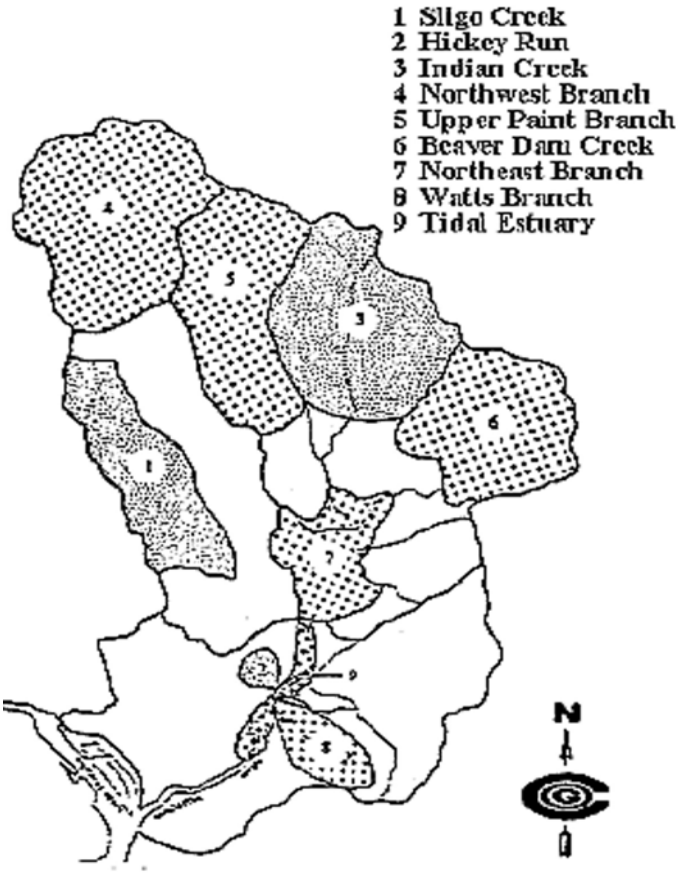
Priority Sub-Watersheds

Nine watersheds have been selected from SWAPS and three will be prepared during the coming year.

SLIGO CREEK: Flowing through densely populated sections of Montgomery and Prince George's counties, Sligo Creek is one of the most heavily urbanized Anacostia tributaries. Although bordered by a thin buffer of parkland managed by M-NCPPC, periodic parkland and roadway flooding, in addition to severe streambank erosion are the major problems affecting the stream. As a result, Sligo Creek supports few fish and other forms of aquatic life.

HICKEY RUN: Located entirely within the District of Columbia, this 1070 acre watershed is heavily polluted from upstream commercial and industrial land uses. Hickey Run has a fifty year history of chronic oil spills and stormwater runoff of oil and grease. In addition, water quality problems include violations of bacteria, BOD, trace metals, pH, DO and phosphates.

INDIAN CREEK: Originating in the sparsely developed upper reaches of the basin, the character of Indian Creek changes as it meanders through numerous active and abandoned sand and gravel mining areas. It is there that numerous abandoned sand and gravel mines contribute large amounts of sediment to the river. In its lower reaches, Indian Creek passes through a highly urbanized, commercial and residential corridor. At its confluence with Paint Branch, the stream is a concrete lined flood control channel with little or no vegetative buffer.



This map indicates the locations of the nine priority sub-watersheds located within the Anacostia basin.

Non-Point Source Storm Monitoring Network Established

In addition to the CAMP network, a system of storm monitoring stations became operational during 1989 (figure omitted). The storm monitoring network was established to measure pollutant loadings delivered to the tidal estuary, as well as to assess the impact of urban stormwater runoff on stream water quality.

During 1989, four storm monitoring stations were operated in the watershed. These monitoring stations neatly fall within two distinct categories: watershed monitors and performance monitors.

Watershed Monitors

The Northwest Branch Storm Monitor: This monitor was installed by MDE and COG within the existing USGS stream gauging station house at Queens Chapel Road in Hyattsville, Maryland. This station gathers storm-flow water quality data from 49 square miles of Piedmont drainage in the western portion of the Anacostia watershed.

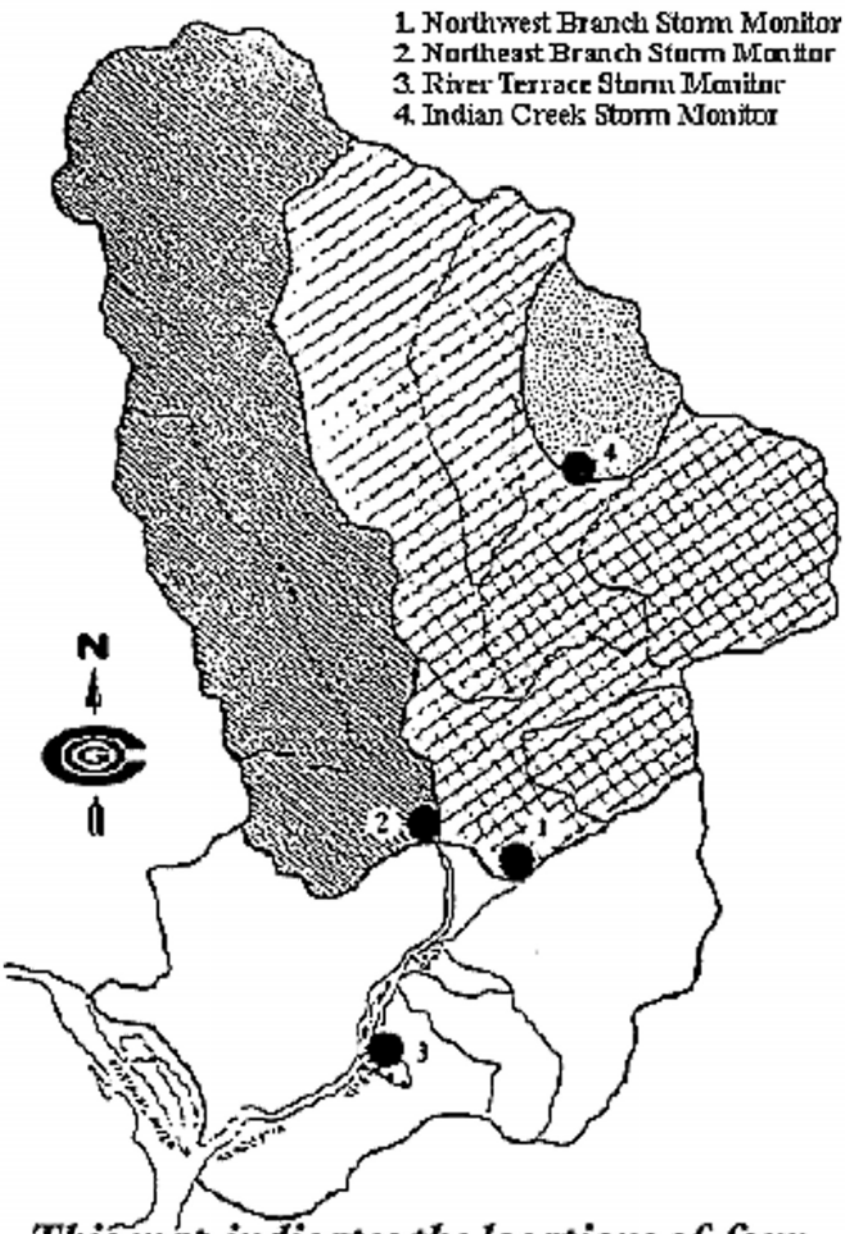
The Northeast Branch Storm Monitor: This monitor was installed by the Natural Resources Division of PG-MNCPPC at the stream gauging station house at Riverdale Road in Riverdale, Maryland. This station gathers storm-flow water quality data from 72.8 square miles that drain to it through the eastern portion of the free-flowing Anacostia watershed.

Both monitors work in tandem, gathering information from the two main tributaries that form the Anacostia River when they merge just upstream of the Bladensburg Marina. At their confluence lies the head of tide which signals the transition of the watershed from free-flowing upland drainage to the tidally-influenced estuary.

Performance Monitors

The River Terrace Storm Monitor: This monitor is located at the terminus of C Street, NE in a heavily urbanized portion of downtown Washington DC. The monitor measures pollutant levels within the storm drain system of an industrial and residential area before they are discharged into the Anacostia.

The Indian Creek Storm Monitor: This monitor measures pollutant levels within upper Indian Creek. Land use within the seven-square mile watershed includes new development, forest cover, and abandoned sand and gravel mines. The monitor is operated by PG-MNCPPC and will be used to assess the effectiveness of three large urban retrofit projects.



This map indicates the locations of four storm monitors located within the Anacostia watershed.

Restoration Accomplishments: Implementation of Basin-Wide Controls

Water quality problems in the Anacostia can be largely attributed to urban nonpoint sources of pollution. Major nonpoint sources in the basin include combined sewer overflows, urban runoff from developed areas and erosion from construction sites and surface mining operations. Within certain areas of the basin, point sources of pollution also have major negative impacts on water quality. To improve water quality within the basin, pollution from each of these areas must be addressed and minimized.

During the third year of the restoration effort, a number of basin-wide controls were implemented to improve both water quality and stream habitat. The following list summarizes the accomplishments achieved in this area.

CSO Abatement Program in the Anacostia - About one third of the District's drainage area (12,500 acres) is served by combined sewer systems that date back to the late 19th century. Most of the CSO discharge points are concentrated along the Anacostia near RFK stadium. Phase I of a 400 million-gallon-per-day Swirl concentrator facility near the RFK Stadium outfall is complete and should be operational by summer of 1990. Progress on Phase II of the program includes completion of a CSO benefit study in addition to obtaining necessary operational permits.

Basin-wide Implementation of the Retrofit Program - The Anacostia Watershed Urban Retrofit Directory lists 26 projects in the District of Columbia, Prince George's County, and Montgomery County that have been approved for funding, are in the design phase, or are under construction. Approximately $5 million has been committed to these projects. Construction has been completed on the Wheaton Branch Stormwater Retrofit in Montgomery County. This project represents one of the first generation Maryland State Cost-Share projects treating 824 acres of a 55% impervious watershed area.

Point Source Controls - The State of Maryland has required the Mineral Pigments Plant at Indian Creek to abide with new discharge restrictions for toxic metals contained within surface runoff from the site. This action has dramatically reduced nitrogen levels within the stream. Processing waste is now treated at the Blue Plains Treatment Plant. In addition, the Hickey Run METRO site has also been required to treat oil byproducts at the Blue Plains Treatment Plant.

Enhanced Controls On New Development - Local governments are continuing efforts to mitigate the impact of new development on the Anacostia, through stringent stormwater/sediment control land-use and site design review. Both

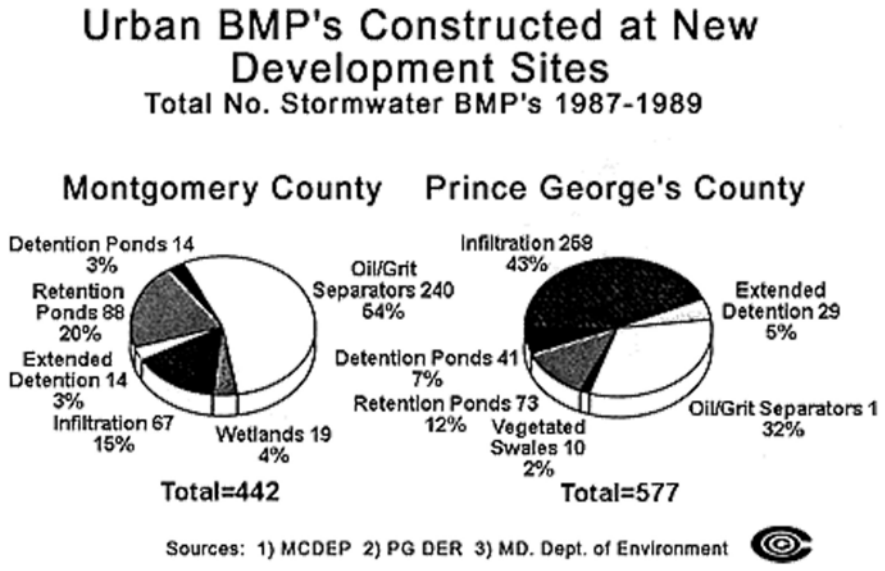
Prince George's and Montgomery counties have passed Tree Preservation ordinances for the protection of trees, woodland, and wildlife habitat from the impacts of land development. In 1989, more than 20 acres of land were reforested in the Anacostia watershed. More of these projects are planned for 1990.

Surface Mine Reclamation: Cleanup at the Magruder/Rawlins Site - Reclamation work at the Magruder/Rawlins abandoned sand and gravel facility is nearly 80% complete. Much of the work to-date has included regrading, sludging, and seeding the north and south portions of the site. In an effort to complete all of the scheduled reclamation work, the Maryland Department of Natural Resources, Surface Mining Division, has granted a permit extension through October of 1990 for surface grading, sludging, and seeding for the remainder of the site.

Restoration Accomplishments: Sediment/Stormwater Controls for New Development

Development activity was strong throughout the Anacostia basin during 1989, reflecting a six-year-long boom in the building industry. Local governments worked to institute tight controls on the new urban and suburban development so as to minimize the impact on streams. These controls include tough requirements to reduce sediment generated during the construction stage of development, as well as requirements to construct urban BMPs to control stormwater runoff. Urban BMPs include wet ponds, extended detention ponds, created wetlands, infiltration trenches, and oil/grit separators.

County-wide statistics compiled during 1987 to 1990 underscore the significant efforts made in Montgomery and Prince George's Counties to protect urban streams (no data was available to assess the District of Columbia's stormwater and sediment control programs). As can be seen in the chart below, more than 1,000 urban BMPs were constructed in both counties during the three-year period. A majority of these BMPs were capable of removing urban pollutants and controlling frequent flooding. An increase in the use of certain kinds of BMPs such as infiltration systems, wet ponds, created wetlands, and oil/grit separators was seen.



Similar improvement was noted during 1989 for construction site sediment control. Recent statistics generated by MDE indicate that more than 30 square miles of land in the two counties saw new construction in 1989. Local governments responded by increasing

the number of sediment control inspectors, and enforcing more stringent sediment control plans at construction sites. Nearly 1,800 sediment control permits were issued with an average load of about 100 permits for each inspector. While the inspectors remained overloaded, this represented an encouraging drop in the inspection burden from the previous year. A number of initiatives are to be undertaken to further improve local stormwater and sediment control programs, which are described in the Third Annual Workplan.

Restoration Accomplishments: Recreating Lost Wetlands

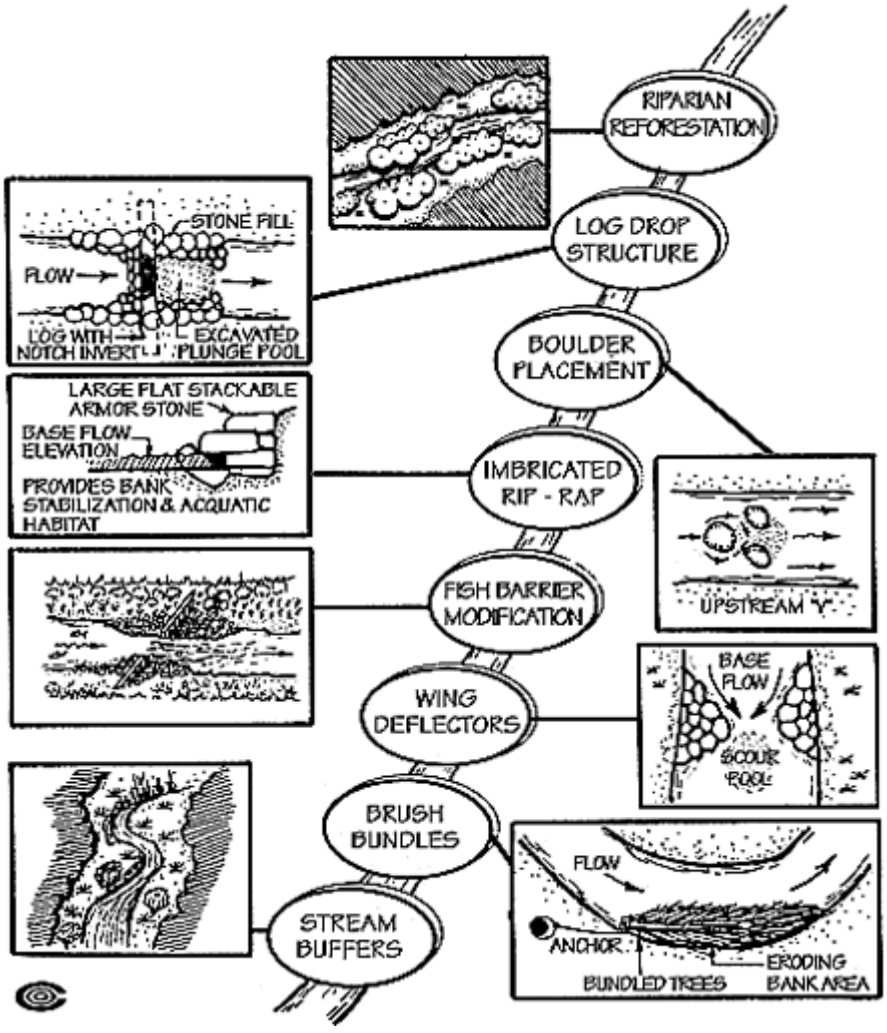
Tidal and nontidal wetlands have been destroyed in many portions of the Anacostia watershed. Experimental work was performed during 1989 to re-create wetlands lost to human actions. COG staff planted the margins and shore line zones of five stormwater ponds on Montgomery County with emergent wetland plants, such as wild rice, bulrush, arrow arum, wild celery, and sweet flag. Most of the wetland survived to the next year.

Another wetland planting experiment was conducted on the shore line margins of the tidal Anacostia River in 1989. The University of Maryland planted eight species at two sites along the tidal zone to determine which wetland plants will fare the best in the demanding environment of the Anacostia.

Lessons learned from both planting efforts will be used to develop better planting strategies to recreate the lost wetlands of the Anacostia.

Restoration Accomplishments: Urban Stream Restoration Techniques

Part of the process of restoring an urban watershed such as the Anacostia involves rebuilding or the re-creation of its streams that have become damaged or severely altered by years of urbanization and agriculture. The following eight stream restoration techniques are being used in the Anacostia.



Restoration Accomplishments: Living Resources

The following section reports on progress made toward improvement of Living Resources as part of the overall program of watershed restoration in the Anacostia.

Fish Passage Modification

During 1989, the ICPRB organized a Migratory Fish Barrier Working Group to serve as a subset of the Maryland and Chesapeake Bay Migratory Fish Working Group. The Work Group established three goals in response to recent biological monitoring conducted in the Northeast and Northwest Branches and the Lower Anacostia River: (1) Remove/modify barriers to fish passage, (2) improve water quality, and (3) restore fish habitat.

The Work Group identified three sites where barriers to herring migration exist: (1) Northeast Branch weir structure behind PG-MNCPPC offices, (2) Northwest Branch 38th Street dam in Hyattsvilles, and (3) Northwest Branch sewer encasements located 200 yards upstream from the 38th Street dam. The Work Group is optimistic that work will begin to modify the weir structure in the Northeast branch during the summer of 1990. .

Riparian Reforestation Effort

As with most urban areas, the Anacostia watershed has experiences tremendous loss of tree cover due to watershed development. increased urbanization and the resultant need for flood control protection have both increased the loss of forested areas. Of particular concern is the loss of tree cover adjacent to rivers and streams. Tree cover along streams not only provides essential habitat, shading and forage for both aquatic and terrestrial species, but also can protect surface and ground water quality. Forested stream buffers also provide wildlife corridors essential for survival in the urban environment.

In the recent inventory of restoration opportunities in the Anacostia, more then ten linear miles of reforestation projects were identified in the watershed. Concepts developed for these projects typically include the use of mixed-age, native plant and tree species in an attempt to mimic the historical streamside ecosystem. In areas of intensive recreational use or high visibility, different planting strategies may be needed.

The reforestation of the Anacostia stream corridor is an ambitious task, and due to constraints such as land ownership or incompatible existing land uses, it may not be possible to create a totally connected forested corridor. With the help of both local staffs and volunteers, however, tremendous improvements can be made.

Restoration Accomplishments: Public Participation

During 1989, the ICPRB program continued to strengthen and expand its efforts in the following areas:

Eight sub-basin coordinators covering nine sub-basins promoted public involvement for the Anacostia restoration effort to more than 1,000 people. This was accomplished by oral-slide presentations to civic associations, environmental groups, and community leaders, in addition to conducting educational stream walks and distributing related printed literature. The part-time coordinators have continued to walk and photograph their designated streams while advising appropriate agencies of problems. A photographic library of the tidal river and upstream tributaries now includes more than 1,000 slide transparencies.

The ICPRB published and distributed four issues of "In the Anacostia Watershed," an 8-page quarterly newsletter devoted to restoration and citizen accomplishments in the Anacostia watershed. In 1989, 8,500 free copies of the publication were distributed, doubling the previous year's circulation.

Volunteers for the Anacostia were sought and encouraged to join the organization(s) of their choice, and to adopt segments of tributary streams.

In an effort to train the public about stream habitat and clean-up efforts, a series of educational workshops for volunteers were held in the spring of 1989.

1989 saw the publication of "Restoring Watts Branch", the first of a series of 8-page, sub-basin educational documents.

ICPRB continued to provide support for agencies engaged in restoration efforts.

Getting Involved - Volunteers:

For general volunteer information on the Anacostia restoration effort and involved organizations.

Interstate Commission on the Potomac River Basin (ICPRB): Beverly Bandler, Suite 300, 6110 Executive Boulevard, Rockville, MD 20852. (301) 984-1908.

Annual Tidal Anacostia Clean-Up: Howard Gasaway, 2806 32nd Street, SW, Washington, DC 20020. (202) 544-7333.

Adopt A Stream: The Interstate Commission on the Potomac River Basin (ICPRB), Maryland Save Our Streams, 5531 Bosworth Avenue, Baltimore, MD 21207. (301) 448-1979; Izaak Walton League Save Our Streams, 1401 Wilson Boulevard, Level B Arlington, VA 22209. (703) 528-1818.

Join an organization such as the Alliance for the Chesapeake Bay, Anacostia Watershed Society, Audubon Naturalist Society, Chesapeake Bay Foundation, Izaak Walton League, League of Women Voters, and Maryland save our Streams.

One Million Marylanders for the Bay is a state-wide effort aimed at getting groups actively involved in projects to improve the bay, including: tree planting, habitat enhancement, stream and shoreline clean-up, and shoreline erosion control. Write: One Million Marylanders for the Bay, Office of the Governor, State House, Annapolis, MD 21401.

The Soil Conservation Service's Earth Team Program offer a variety of opportunities. Contact the appropriate District Conservationist in the District of Columbia (576-6951), Prince George's County (952-3903), and Montgomery County (590-2855).